In the Claims

1   1. (currently amended) A method for scheduling packets in a router of a

2   packet-switched network having a plurality of service classes, the router

3   including one queue for each service class, each queue storing packets to be

4   transmitted according to the associated service class, comprising:

5   measuring an average queue length for a particular one of the queues

6   every time one packet is stored in the particular queue, wherein the

7   particular queue includes a minimum threshold and a maximum threshold,

8   the maximum threshold representing a desired transmission delay, and the

9   maximum threshold representing an acceptable transmission delay; and

10   allocating bandwidth to each of the plurality of service classes

11   according to the average queue length.

1   2. (original) The method of claim 1 wherein the plurality of services classes

2   include a premium service, an assured service, and a best-effort service, and

3   wherein the particular queue is associated with the premium service class.

1   3. (original) The method of claim 1 wherein the average is an exponential

2   weighted moving average.

1   4. (previously presented) The method of claim 3 further comprising:

2   applying a low-pass filter to the exponential weighted moving

3   average.

1   5. (cancelled)

1   6. (original) The method of claim 1 wherein *avg* is the average queue length,

2   and *l* is an instantaneous queue length, and f_l is a low-pass filter, and wherein

3   the average queue length is determined by $avg \leftarrow (1 - f_l) \cdot avg + f_l \cdot l$.

1   7. (original) The method of claim 6 wherein f_l is 0.01.

1   8. (cancelled)

1   9. (currently amended) The method of ~~claim 8~~ <u>claim 1</u> wherein bandwidth

2   for the service class associated with the particular queue is increased when

3   the average exceeds the minimum threshold.

1   10. (original) The method of claim 9 wherein the bandwidth allocated to the

2   service class remains below a predetermined upper limit when the average

3   exceeds the maximum threshold.

1   11. (original) The method of claim 1 wherein the plurality of services classes

2   include a premium service *EF*, and wherein the particular queue is

3   associated with the premium service class, and wherein the particular queue

4   includes a minimum threshold T_{min} and a maximum threshold T_{max}, the

5   maximum threshold representing a desired transmission delay, and the

6   maximum threshold representing an acceptable transmission delay, and

7   wherein *avg* is the average queue length, and *l* is an instantaneous queue

8   length, and f_l is a low-pass filter, and wherein an initial weight of bandwidth

9   for the premium service is w_p, and an allocated bandwidth weight EF_w of the

10   premium service, as a function of *avg* is

11
$$EF_w = \begin{cases} w_p, & avg \in [0,0.5) \\ \dfrac{(upper - w_p) \cdot (avg - T_{min})}{T_{max} - T_{min}}, & avg \in [0.5,2) \\ upper, & avg \in [2,s) \end{cases}$$

12   where *upper* represents a predetermined upper limit when the average

13   exceeds the maximum threshold, and *s* is a size of the particular queue

14   measured in packets.

1   12. (original) The method of claim 11 where *upper* is *0.7*.

1   13. (currently amended) A method for scheduling packets in a router of a

2   packet-switched network having a plurality of service classes, the router

3   including one queue for each service class, each queue storing packets to be

4   transmitted according to the associated service class, comprising:

5   measuring an exponential weighted moving average queue length for

6   a particular one of the queues every time one packet is stored in the

7   particular queue; and

8   allocating more bandwidth to the service class associated with the

9   particular queue if the average exceeds a predetermined minimum threshold,

10   wherein the particular queue includes a minimum threshold and a maximum

11   threshold, the maximum threshold representing a desired transmission delay,

12   and the maximum threshold representing an acceptable transmission delay.